

CLAIMS:

1. An exhaust system (10) for a lean burn internal combustion engine, which system
5 comprising a particulate filter (12) disposed between an inlet (18) and an outlet and means for deflecting at least some exhaust gas flowing in the system away from entering the filter at a point immediately opposite the inlet.
2. An exhaust system according to claim 1, wherein the deflecting means comprises
10 a deflector (14) disposed on the inlet side of the filter, which deflector comprising an upstream end having a first cross sectional area and a downstream end having a second cross sectional area, wherein the second cross sectional area > the first cross sectional area.
- 15 3. An exhaust system according to claim 2, wherein the deflector is in the shape of a cone or a frusto-cone.
4. A system according to claim 2 or 3, wherein the deflector comprises a flow
20 through substrate comprising at least two channels.
5. A system according to claim 4, wherein the cross sectional area of each channel on the outlet substrate end is greater than on the inlet substrate end.
6. A system according to claim 4 or 5, wherein the channels converge towards a
25 point on the inlet side of the substrate.
7. A system according to claim 4, wherein the at least two channels are parallel to one another.
- 30 8. A system according to claim 2 or 3, wherein the deflector comprises an outer surface for deflecting the exhaust gas.
9. A system according to claim 8, wherein the outer surface includes at least one aperture for exhaust gas to flow through.

10. A system according to any of claims 3 to 9, wherein the cone or frusto-cone is squashed in at least one dimension about a central, longitudinal axis.

5 11. A system according to any of claims 2 to 10, wherein the deflector is made of a metal.

12. A system according to any of claims 2 to 11, wherein the deflector comprises a catalyst.

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13. A system according to claim 12, wherein the catalyst is for oxidising NO in the exhaust gas to NO₂.

14. A system according to claim 12 or 13, wherein the catalyst comprises an optionally supported at least one platinum group metal (PGM).

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15. A system according to claim 14, wherein the PGM comprises platinum.

16. An exhaust system according to any preceding claim, wherein the deflecting means comprises a lateral washcoat gradient on the filter, whereby the backpressure in a region of the filter immediately opposite the inlet > backpressure in an area peripheral to said region.

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17. An exhaust system according to any preceding claim, wherein the deflecting means comprises lateral gradient of catalyst loading on the filter, whereby the catalyst loading in a region of the filter immediately opposite the inlet < catalyst loading in an area peripheral to said region.

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18. An exhaust system according to claim 17, wherein the catalyst comprises at least one PGM, optionally platinum.

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19. A system according to any preceding claim, wherein the inlet is immediately opposite the centre of the filter.

20. A system according to any preceding claim, wherein the filter is a wall-flow filter.

5 21. A system according to any preceding claim, wherein the filter is of non-circular cross-section.

22. A system according to any preceding claim, wherein the shape of the deflector in cross-section is the same as, or similar to, the shape of filter in cross-section.

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23. A system according to any preceding claim, wherein the filter comprises a catalyst.

15 24. A system according to claim 23, wherein the catalyst comprises an optionally supported at least one PGM.

25. A system according to claim 24, wherein the PGM includes platinum.

20 26. An internal combustion engine including an exhaust system according to any preceding claim.

27. An engine according to claim 26, wherein it is a diesel engine.

25 28. A method of more evenly distributing particulate matter in a flowing exhaust gas across a particulate filter disposed in an exhaust system, which method comprising deflecting at least some exhaust gas flowing in the system away from entering the filter at a point immediately opposite an inlet.